

**UNITED STATES DISTRICT COURT  
SOUTHERN DISTRICT OF NEW YORK**

JET CAPITAL MASTER FUND, L.P.,  
J. GOLDMAN MASTER FUND, L.P., LUMX  
JET FUND LIMITED, and WALLEYE  
TRADING, LLC,

Plaintiffs,

v.

AMERICAN REALTY CAPITAL PROPERTIES,  
INC., NICHOLAS S. SCHORSCH, DAVID S.  
KAY, BRIAN S. BLOCK, and LISA P.  
MCALISTER,

Defendants.

Civil Action No.: 1:15-cv-00307-AKH

ECF Case

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**THE JET CAPITAL FUNDS' MEMORANDUM OF LAW  
IN SUPPORT OF MOTION TO EXCLUDE THE TESTIMONY OF WALTER TOROUS**

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Plaintiffs Jet Capital Master Fund, L.P., J. Goldman Master Fund, L.P., LumX Jet Fund Limited, and Walleye Trading, LLC (collectively, “Plaintiffs,” the “Jet Capital Funds”) respectfully submit this memorandum of law in support of their motion to exclude the testimony of Defendants’ purported market efficiency expert Walter Torous. The Jet Capital Funds rely on, and incorporate by reference, the motion to preclude the testimony of Walter Torous filed by Class Plaintiffs in the consolidated class action, *In re American Realty Capital Properties, Inc.*, No. 15-mc-00040-AKH (S.D.N.Y.) (the “Class Action”). For the reasons set forth in these motions, the Jet Capital Funds are entitled to an order excluding Dr. Torous’ testimony entirely, or, at minimum, excluding his testimony with respect to his purported “y filter” analysis with respect to the Jet Capital Plaintiffs.

### **SUMMARY OF DR. TOROUS’ JET CAPITAL OPINIONS**

Jet Capital purchased ARCP common stock – and only ARCP common stock – from July 30, 2014 to October 27, 2014 (the “Relevant Jet Capital Period”). Dr. Torous does *not* opine that the market for ARCP common stock was *inefficient* during the Relevant Jet Capital Period (Torous Dep. 60:11-17) (excerpts of the deposition of Dr. Torous are attached as **Exhibit 1** to the Declaration of Richard A. Bodnar; references to the deposition of Dr. Torous are noted as “Torous Dep.”). Nor does Dr. Torous put forward any disagreement with the regression methodology, mathematics, or selection of event dates used by the Jet Capital Plaintiffs’ expert, Dr. Zachary Nye, in Dr. Nye’s event study with respect to market efficiency. (See Torous Report (attached as **Exhibit 2** to the Declaration of Richard A. Bodnar).) Nor does Dr. Torous disagree with the parameters or results of Dr. Nye’s test of the Relevant Jet Capital Period for evidence of autocorrelation, nor with Dr. Nye’s conclusion that Dr. Nye’s test showed evidence of market

efficiency.<sup>1</sup> (*Id.*) In his sixty-page report, Dr. Torous spends less than *five* pages responding to Dr. Nye’s market efficiency opinion, with only a select few areas of disagreement. (*Id.*)

In fact, Dr. Torous’s own analyses, contained in Exhibits 2 and 3 of his report, unmistakably show that under *every single analysis* Dr. Torous performed in those exhibits – 18 in total, representing 6 different testing sets with 3 different measurements each – the Relevant Jet Capital Period (which is a subset of the “Post-Cole” Period) exhibited *Cammer* factor 5 evidence of market efficiency. (Torous Dep. 291:14-18; Torous Report Exhibits 2 and 3.) Likely aware that the Relevant Jet Capital Period went 18 for 18 in his *own* tests (and, of course, passes every other *Cammer/Krogman* factor without dispute), Dr. Torous puts forward only two relevant critiques of market efficiency during the Jet Relevant Period, only one of which involves any actual economic analysis by Dr. Torous.

Dr. Torous’ only unique economic analysis in this case relevant to the Relevant Jet Capital Period is in his devising and executing a “Y Filter” trading strategy test (referred to herein as the “Y Filter Test”). (*See* Torous Report Ex. 5). A Y Filter Test is a form of a mechanical trading rule. The test is performed *post hoc* by an economist who “tests” whether a mechanical trading rule – in this case, a rule that instructs a trader to buy or sell based on whether a stock went up or down a certain percentage the day before (the percentage being the “Y” in the “Y Filter”) – is profitable. Thus, a 1% filter Y Filter Test would instruct a trader to buy (or sell) if the stock went up (or down) 1% the day before. The test involves numerous assumptions, including the filter percentage itself, the number of shares to trade, the transaction costs assumed, and other trading assumptions that are required to set out the theoretical ‘test’.

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<sup>1</sup> Nor, as the Class Plaintiffs’ motion discusses at length, does Dr. Torous present any disagreement with Dr. Nye regarding any of the *Cammer* or *Krogman* factors except *Cammer* factor 5.

Dr. Torous purported to run a Y Filter Test. To do so, Dr. Torous chose the following assumptions:

- That the trader trades 1,000 shares each time. Dr. Torous never tested any other transaction amount despite using a different amount in another case.
- The trader incurs \$10 per trade transactions cost. Dr. Torous never tested any higher transaction cost despite using \$100 a trade in another case.
- He assumed and tested exactly, and only, 6 filters: 1%, 1.5%, 2%, 2.5%, 3% and 3.5%. Dr. Torous did not test any other filters above, below, or in-between these numbers.
- He made various other assumptions, including the reinvestment of dividends, no cost of carry for short selling, no interest on the cash position, etc. These assumptions are arbitrary. Dr. Torous did not even test whether his analysis held under different assumption sets.

Having set out his arbitrary assumption set, Dr. Torous then ran the “Y Filter Test” and compared the results to a “buy and hold” strategy – i.e., he queried whether a trader using his specifically chosen Y Filter mechanical trading rules would have beaten buying and holding ARCP common stock during a specific period. Dr. Torous did not test whether the trader would have made a profit, would have beaten the S&P 500, would have beaten shorting ARCP stock, would have beaten any other market strategy, or would have beaten buy and hold within any sub-period of – for example – the Relevant Jet Capital Period. The test, as applied by Torous, queries whether a trader following *any post hoc* test with any set of assumptions that Dr. Torous could devise, might beat buy-and-hold.

Finding that a trader applying a mechanical trading rule using specific arbitrary assumptions (and only those), using the specific Y Filters Dr. Torous selected *post hoc* (and only those), over the period of time Dr. Torous tested (and only that period of time), would have

beaten buying and holding ARCP common stock, Dr. Torous concluded there was evidence of inefficiency of ARCP common stock.<sup>2</sup>

Dr. Torous' testimony should be excluded in whole for the reasons explained in the Class Plaintiffs' briefing. Insofar as the Court would allow Dr. Torous to testify at all, the Court should, at minimum, exclude Dr. Torous' Y Filter analysis entirely. In sum: the Y Filter Test is unscientific, methodologically unsound, unreliable, and for these reasons has no place being presented to a jury.

If Dr. Torous' opinion as to the Y Filter Test is excluded, then Dr. Torous' entire testimony with respect to the Relevant Jet Capital Period should be excluded as well. Without the Y Filter Analysis, Dr. Torous' remaining critique of market efficiency during the Relevant Jet Capital Period boils down to a mathematics dispute that is not beyond the ken of the average juror and that is far better handled via cross examination of the Jet Capital Plaintiffs' expert – instead of via the testimony of yet another defense economist.

### **ARGUMENT**

#### **I. THE Y FILTER TEST SHOULD BE EXCLUDED AS UNRELIABLE**

Dr. Torous performed a “Y Filter Test” with respect to the Relevant Jet Capital Period, and intends to render an opinion that the results of this test “suggest” that ARCP common stock “did not trade in a weak-form efficient market during the entirety of the Relevant Jet Capital Period.” (Torous Report ¶70.) This opinion should be excluded as it is unreliable both in how Dr. Torous seeks to use the Y Filter Test in this case, and in how he conducted his analysis. The Y Filter Test Dr. Torous conducted in this case has no basis in the very literature Dr. Torous cites and is methodologically unsound.

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<sup>2</sup> Notably, this argument was never made to this Court at the Class Certification stage, despite the fact that the analysis required was available to Defendants at that stage as well.



As this Court is aware, expert testimony must contain sufficient indicia of reliability such that (1) “the testimony is grounded on sufficient facts or data”; (2) “the testimony ‘is the product of reliable principles and methods’”; and (3) “the witness has applied the principles and methods reliably to the facts of the case.” *Amorgianos v. Nat’l R.R. Passenger Corp.*, 303 F.3d 256, 265 (2d Cir. 2002) (quoting Fed. R. Evid. 702)). The Second Circuit has instructed that “when an expert opinion is based on data, a methodology, or studies that are simply inadequate to support the conclusions reached, *Daubert* and Rule 702 **mandate the exclusion of that unreliable opinion testimony.**” *Id.* at 266 (emphasis added). The proponent of the expert testimony bears the onus of demonstrating that the proffered expert’s methodology is reliable, and that his or her testimony will assist the trier of fact. *523 IP LLC v. CureMD.Com*, 48 F. Supp. 3d 600, 642 (S.D.N.Y. 2014) (quoting *United States v. Williams*, 506 F.3d 151, 160 (2d Cir. 2007)).

As a threshold matter, the Jet Plaintiffs’ Counsel has been unable to locate *any court* in the United States that has accepted or relied upon a Y Filter Test of any kind with respect to finding a market inefficient, or even in just rejecting an affirmative finding of market efficiency. This is not surprising, as Dr. Torous himself admitted at deposition that he too was unaware of *any court* having accepted a Y Filter Test to find a market inefficient despite the test being existing in academic literature dating *from the 1960s*. (Torous Dep. 321: 10-14.)

This is not surprising. The Y Filter Test, as applied by the very authors (Fama & Blume)<sup>3</sup> that Torous cites, has no place in an analysis of whether a *particular* stock is trading in an efficient market during a relatively short period. Indeed, Fama & Blume’s work has *not* been cited for the proposition that any *particular* market for a *particular* stock is *inefficient*, but rather

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<sup>3</sup> Eugene F. Fama and Marshall E. Blume, Filter Rules and Stock-Market Trading, *The Journal of Business*, Vol. 39, No. 1, 1966 (cited in Torous Report at 30 n. 85; 31 n. 86; 39 n. 114; Ex. 5.) (referred to herein as “Fama & Blume”). A complete copy of the article is attached as **Exhibit 3** to the accompanying Declaration of Richard A. Bodnar, Esq. The Fama & Blume paper was marked as Exhibit 2205 at the deposition of Dr. Torous.

for the proposition that “a great number of studies have shown that stock exchanges, such as the New York Stock Exchange, have a reasonably efficient market.” *Armstrong v. Marathon Oil Co.*, 513 N.E.2d 776, 787 (Ohio 1987) (citing Fama & Blume).

The inappropriateness of the Y Filter Test for this kind of analysis is demonstrated by the stark differences between Fama & Blume’s test and Dr. Torous’ test:

- Fama & Blume ran their test on the *Dow 30*. They tested *thirty* equities, not a single stock, like Dr. Torous.
- Fama & Blume tested 24 different filter levels. Dr. Torous tested only six.
- Fama & Blume used a data set with well over 1,000 observations – i.e., years of market data. Dr. Torous used a data set with under 200 observations – less than 1 year of data on a single stock.
- Fama & Blume tested *multiple* filtering techniques. Dr. Torous tested *one*.
- Fama & Blume expressed grave concern about the reliability of *their own test* at filter levels that resulted in “low” numbers of trades. Many of Dr. Torous’ filters had trade numbers well below the number of trades about which Fama & Blume expressed reliability concerns.
- Fama & Blume sought to measure the profitability of mechanical trading strategies, not their ability to beat some other strategy. Only half of the arbitrary assumption sets Dr. Torous even bothered to test were profitable. (Torous Report Ex. 5). In other words, unlike Fama & Blume, Dr. Torous counted tests as ‘successful’ even if they *lost money*.
- Fama & Blume’s conclusion, despite multiple securities “failing” multiple mechanical trading rules, was that the Dow 30 market was *generally efficient*. Dr. Torous’ view is that if a stock over an arbitrary period fails even *a single filter* under any assumption set – the stock is exhibiting evidence of inefficiency. (Torous Dep. 281:13-282:5). As Dr. Torous admits, he is actually “looking for” strategies that are consistent with the market not being weak-form efficient (*id.* at 286:15-17), as opposed to running a fair test like Fama & Blume.
- The Y Filter Test is inherently *post hoc*. After the fact, any number of so called ‘strategies’ would have beaten buying and holding ARCP, including strategies such as: do not buy ARCP stock; only buy the S&P 500; short ARCP stock; or only ever hold cash. The fact that these *post hoc* strategies beat ARCP is not evidence of an inefficient market – they are evidence of nothing at all.

Even if the Y Filter Test – intended for use on a basket of equities across multiple years – was appropriate to use on a single stock for a period of less than one year, Dr. Torous’ application of the Y Filter Test is flawed, unreliable and should be excluded.

The Y Filter Test – especially when used in an inappropriate manner, as Dr. Torous does – involves a number of arbitrary assumptions. By setting these arbitrary assumptions at certain levels, an economist can generate very different results. Dr. Torous did not bother to so much as test *any* assumption sets besides those appearing in his report. The results of his cherry-picked arbitrary assumptions are not in any way robust; in fact, the outcome of the test changes with even small adjustments in assumptions. Assumptions such as:

- **Filter levels.** Torous tested 6 (and supposedly *only* 6) potential ‘filter levels’ (i.e., 1%, 1.5%, etc.). (Torous Dep. 272:18-273:18). Fama & Blume, on the other hand, tested 24. Torous’ testing of the 6 filter levels ignores that his filter strategy fails at various other filter levels (depending on other arbitrary assumptions), including some below his lowest filter (<1%), some in between his various filters, and some above his highest filter (>3.5%).
- **Number of Shares Per Trade.** Dr. Torous arbitrarily assumes that each transaction will be 1,000 shares per trade. (Torous Dep. 269:23-270:21.) He did not test anything besides 1,000 shares per trade. (*Id.* at 270:3-21). The 1,000-share-per-trade figure is a completely arbitrary assumption – something Dr. Torous certainly knows since he has proffered an expert report in another matter using 10,000 shares per trade. (Torous SQM Report p.36 n. 99).<sup>4</sup> Dr. Torous’ Y Filter Test ignores that at various numbers (depending on other arbitrary assumptions, especially share amounts below 1,000) the Y Filter Test fails.
- **Transaction Costs Per Trade.** Dr. Torous arbitrarily assumes transaction costs of \$10 per trade. (Torous Dep. 271:3-272:17). In another matter, Dr. Torous used a transaction cost of \$100 per trade (Torous SQM Report p. 36 n. 99), but he did not bother to test that transaction cost level here (the strategy fails at that transaction cost level, depending on other assumptions). Dr. Torous did not test anything above \$10 per trade. (Torous Dep. 278:7-8.) Nor

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<sup>4</sup> A copy of Dr. Torous’ report filed in the matter of *Villela v. Chemical and Mining Company of Chile Inc., et al.*, Case no. 1:15-cv-02106-ER-GWG (S.D.N.Y.), is attached to the Declaration of Richard A. Bodnar as **Exhibit 4**. This document is referred to herein as the “Torous SQM Report.”

did Dr. Torous test a percentage, rather than a fixed dollar amount, of transaction costs. (*Id.* at 278:12-17.)

- **Other Assumptions.** Dr. Torous assumed dividends are reinvested. He did not even test the Y Filter without dividend reinvestment. (Torous Dep. 275:2-4.) Dr. Torous also assumed that short positions have no “cost of carry” – in effect, interest on the stock loan. He did not even test whether the Y Filter would beat buy and hold if a cost of carry were imposed (no less, test various cost of carry assumptions). (*Id.* at 275:5-11.).

Dr. Torous’ failure to test assumption sets other than those in his report makes his analysis unreliable. Changing even *one* of the above variables readily changes the results of the test. This is a well-known issue with the Y Filter Test. And of course there are quite literally an *infinite* set of assumptions that can be made – setting filters to any number (0.1%, 0.15%, 0.16%, 0.185%, 1.1%, 4.0%, etc.), share amounts to any number (100, 1000, 5000, 10,000, etc.), and transaction costs to any number or percentage (1%, \$10, 1.5%, \$20, \$5%, \$100, etc.). It is precisely this issue – the fact that an infinite number of assumption sets can be created and “mined” for a conclusion that fits the economists’ desired outcome, that has led authors – *including Fama himself* – to criticize the use of filter trading tests. *See* James Lindgren, Telling Fortunes: Challenging the Efficient Markets Hypotheses by Prediction, 1 S. Cal. Interdisc. L.J. 7, 20–23 (1992) (discussing “data mining” as a challenge to filter trading rules and quoting Professor Eugene Fama, “with many clever researchers, on both sides of the efficiency fence, rummaging with powerful computers through common data, we are sure to find predictability, even when it isn’t there.”); *see also* Lawrence A. Cunningham, From Random Walks to Chaotic Crashes: The Linear Genealogy of the Efficient Capital Market Hypothesis, 62 Geo. Wash. L. Rev. 546, 557 (1994) (subsequent refinements of the Y Filter test, including by Professor Eugene Fama, “demonstrated that relaxing or changing certain assumptions eliminated the abnormal

returns” – the abnormal returns being the returns that allow an author to claim the “success” of the test).<sup>5</sup>

The Y Filter Test, as applied by Torous is an inappropriate, *post hoc*, data mining exercise. It is not appropriately applied here, it is not reliable as Dr. Torous conducted it, and it has no value to the fact finder.

## **II. SHORN OF THE Y FILTER TEST, DR. TOROUS’ OPINIONS AS TO THE JET RELEVANT PERIOD ARE EITHER DUPLICATIVE OR NOT HELPFUL TO THE JURY**

As to the Relevant Jet Capital Period, the Y Filter Test is the *only* unique piece of analysis Dr. Torous actually performed. Shorn of that test, Dr. Torous’ disagreement with Dr. Nye boils down to whether Dr. Nye’s analysis – finding that there are two statistically significant earnings dates (one at the 95% confidence level and one at the 94.1% confidence level) – is sufficient or not. The jury is perfectly capable of appreciating that 94.1% is close to, but not above 95%. Dr. Torous made clear at deposition that his opinion would be that a result at the 95% level was required for statistical significance. (Torous Dep. 307:7-308:9.)

Drs. Unni, Kleidon, and Fischel are all capable of informing the jury that 94% is less than 95%, and their view of why 95% is the only possible relevant threshold (despite the use of various figures, including 90%, in academic work and by courts).<sup>6</sup> Dr. Torous’ opinion (shorn of the Y Filter Test) is duplicative of the other Defendants’ experts and unhelpful to the jury.

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<sup>5</sup> Perhaps for this very reason, Dr. Torous did not run a Y Filter Test in a number of other cases where he was engaged as an expert. (Torous Dep. 320:2-14.)

<sup>6</sup> See, e.g., *In re Lithium Ion Batteries Antitrust Litig.*, No. 13-MD-2420 YGR, 2017 WL 1391491, at \*11 (N.D. Cal. Apr. 12, 2017) (“[E]stimates statistically significant at either the 90% or 95% confidence levels, both widely accepted as valid for evidentiary purposes.”); *In re High-Tech Employee Antitrust Litig.*, No. 11-CV-02509-LHK, 2014 WL 1351040, at \*15 (N.D. Cal. Apr. 4, 2014) (collecting authorities and discussing levels of 1, 5 and 10% as being used); *Madani v. Equilon Enterprises LLC*, No. CV 04-10370 JVS JTLX, 2009 WL 2148664, at \*11 (C.D. Cal. July 13, 2009) (“generally accepted” confidence levels “in the economic community” range from 90-95%); see also *Pirnik v. Fiat Chrysler Automobiles, N.V.*, 327 F.R.D. 38, 46 (S.D.N.Y. 2018) (noting that a confidence level of 92.12% was “less comfort” than a 95% return, but refusing to dismiss the result as irrelevant or sufficient to refute

### **CONCLUSION**

The Court should exclude Dr. Torous' opinion in its entirety for the reasons stated in the Class Plaintiffs brief. At a minimum, Dr. Torous' Y Filter Trading analysis should be excluded for the reasons stated above. Should the Court exclude Dr. Torous' Y Filter Trading analysis, the Court should further exclude Dr. Torous' testimony as to the Jet Relevant Period in its entirety for the reasons stated above.

DATED: August 5, 2019

Respectfully submitted,

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price impact); *cf. Sacerdote v. New York Univ.*, 328 F. Supp. 3d 273, 311 n. 111 (S.D.N.Y. 2018) (noting statistical significance of a result at the 10% level); *In re Ephedra Prod. Liab. Litig.*, 393 F. Supp. 2d 181, 193 (S.D.N.Y. 2005) (suggesting that a p value of 0.5 (i.e., a confidence level of 50%) may be sufficient under a preponderance of the evidence standard); *see also* David I. Tabak & Frederick C. Dunbar, Materiality and Magnitude: Event Studies in the Courtroom, Ch. 19, *Litigation Services Handbook, The Role of the Financial Expert* (3d ed. 2001) (identifying 90% level as one of the relevant boundaries for significance.).

<b>Table: Bodnar Declaration</b>	
<b>Exhibit 1</b>	Excerpts of the Deposition of Walter Torous ( <b>FILED UNDER SEAL</b> )
<b>Exhibit 2</b>	Rebuttal Expert Report of Walter N. Torous, Ph.D. Dated June 3, 2019 ( <b>FILED UNDER SEAL</b> )
<b>Exhibit 3</b>	Eugene F. Fama and Marshall E. Blume, <u>Filter Rules and Stock-Market Trading</u> , <i>The Journal of Business</i> , Vol. 39, No. 1, 1966
<b>Exhibit 4</b>	Rebuttal Expert Report Of Walter N. Torous, Ph.D. Dated December 12, 2018, Submitted in <i>Villela v. Chemical and Mining Company of Chile Inc., et al.</i>